



**ETA KAPPA NU**

Electrical and Computer Engineering Honor Society



# Annual Report 2016-2017

Epsilon Xi Chapter

WICHITA STATE UNIVERSITY

September 30, 2017

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## Message from the EECS Department Chair



The 2016-2017 academic year in the Electrical Engineering and Computer Science Department (EECS) at Wichita State University (WSU) has been very exciting. In the fall, the department experienced a record undergraduate enrollment with over 700 students. In the spring, we moved many of our laboratories into the new Experiential Engineering and Maker Space Building on the Innovation campus. Dr. Zheng Chen was awarded a National Science Foundation Career award. Dr. Eslami was selected for the first ever WSU Young Faculty Risk Taker Award. Dr. Murtuza Jadhliwala received the College of Engineering Wallace Excellence in Teaching Award. Dr. Huzefa Kagdi, Dr. Animesh Chakravarthy, and Dr. Visvakumar Aravinthan were all awarded tenure and promoted to Associate Professor. In the spring semester, the Department began offering a Graduate Certificate in Information Assurance and Cybersecurity. Led by Dr. Vinod Namboodiri, the National Science Foundation (NSF) sponsored Networked Cyber Physical Systems Research Experience for Undergraduates (REU) began this summer at WSU.

Despite all these successes, nothing gives me more pleasure than the progress that the Epsilon Xi chapter of IEEE-HKN has made this year. The continued to make a strong positive impact on the department and the profession through activities such as tutoring, outreach activities with local schools, and their IEEE-HKN Awards ceremonies each semester. The Outstanding EECS Graduating Undergraduate Student winner, Alicia Keow, received honorable mention for the national Alton B. Zerby and Carl T. Koerner Outstanding Electrical and Computer Engineering Student Award. Since being reactivated in 2014, the chapter won an Outstanding Chapter Award for the 2<sup>nd</sup> straight year. Finally, I am very proud of them as they received a \$10,000 grant from EPICS in IEEE for their project “Ride-on Cars for Children with Disabilities.” They are partnering with the WSU Go Baby Go program, Project Lead The Way, and local organizations to provide mobility for children with disabilities through the modification of ride-on cars. In conclusion, I would like to congratulate the Epsilon Xi chapter of IEEE-HKN on an outstanding job. I look forward to working with them, as they set their sights even higher for 2017-2018.

Dr. John Watkins

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## Message from the Epsilon Xi Chapter President



I have been honored to serve as the President of Epsilon Xi Chapter at Wichita State University for the year of 2017. Our main goal is to encourage and recognize excellence in students and faculty at our university and this was only possible with the hard work and commitment from the Epsilon Xi chapter officers and our advisors.

I am proud to witness Epsilon Xi winning an Outstanding Chapter Award for the second year in a row and am hopeful for this tradition to continue. I am also delighted that Mr. Alex Mages, our former recording secretary, was also announced as a finalist for the Alton B. Zerby and Carl T. Koerner Outstanding Electrical or Computer Engineering Student Award.

I believe our activities foster a lasting impact within our department as well as the local community. The most notable of these is our participation in the IEEE – EPICS program to provide mobility to disabled children in the community. We also maintain strong ties with our local high schools and elementary schools and take the opportunity to promote electrical engineer and computer science related fields to these students. We have seen an exponential growth in the range of activities offered through our organization over the past 3 years since the reinitiating and we hope to continue this momentum in the coming years.

Nimanthi Nandasiri

Chapter President

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## Information sessions (Fall 2016 & Spring 2017)

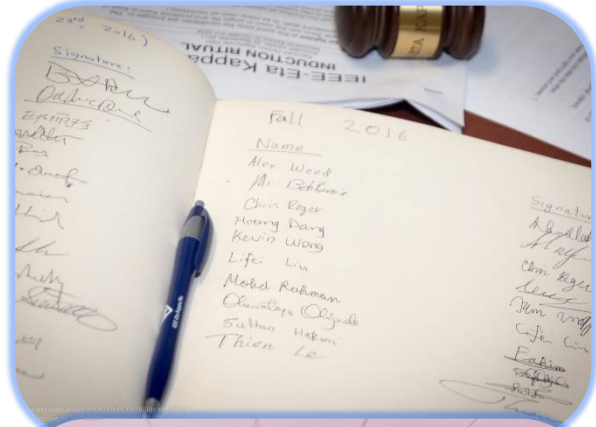
This is one of the most exciting events held by put chapter. It is very valuable to us as this is the first time we are meeting our prospective members in person. The information session highlights the semester events that currently under way so that they could join such activities before we initiate them. This event also gives us a view into the different aspects of their life and character which we consider when deciding to induct them into our professional society. Also, during this event we give students an opportunity to talk to other incoming prospective members and get to know each other and to talk with our officers and faculty advisors to know more about our society and what we do. This is also the event where they paint their souvenir HKN emblem boards. These boards are then signed by all present officers as well as the fellow initiates.



## Member Induction Ceremonies

During Fall 2016 and Spring 2017, we successfully inducted 9 undergraduate students and 10 graduate students to our Epsilon Xi chapter. We are very proud of the new initiates and they are happily involved in the chapter outreach programs. On Spring 2017 induction ceremony we started adding portable lamps while reading the ritual to make the induction ceremony more active and interesting to prospective members. Family members also participated at the event to witness this proud moment. Pizza was served after the successful induction to Epsilon Xi chapter. For Fall 2016, around total of 26 people and for Spring 2017 around 30 people participated to the event.





## Bowling with IEEE-HKN

After our monthly meeting on February 10<sup>th</sup>, 2017 we headed to the Wichita State Rhatigan Student Center for a friendly game of bowling. It was a lot of fun spending time in this energetic bowling alley at our own campus. We enjoyed socializing as we watched each of our IEEE-HKN members bowl, cheering them on with support!





## Founders Day Celebrations

The 112th Annual Founder's Day was celebrated on October 28, 2016 in Rhatigan Student Center after the Fall 2016 Induction ceremony. 20 HKN members and 40 non-members came to help us honor the past and celebrate the future of HKN. Every student that stopped by received a wristband, pens, frisbees, sunglasses etc. Along with celebrating with current members, many EECS students came to learn about our organization in hopes of becoming a member in the near future.



## Officers Election

On December 2<sup>nd</sup> 2016, the election for the year 2017 was conducted with a positive ambition of the chapter being more influential active among the university as well as in the community. The number of officer positions was raised from previous year, 7 to now 12. This mainly due to increase in the number of activities conducted by chapter and therefore the need to divide the workload. Sub committees were also created to support the new officer positions. Our chapter advisors, Dr. Visvakumar Aravinthan and Dr. Sergio Salinas took necessary steps to conduct the election process in a smooth and official manner.



## Fall Potluck

The semester thanksgiving potluck took place after the final meeting and election ceremony of the IEEE-HKN chapter. The event was well attended with twenty members inclusive of three faculty members. The event provided HKN members with the opportunity to converse, and engage with some of the new members who had been recently initiated. The event was received positively and it gave HKN members a time to reflect on the semester, and discuss plans to improve the organization for the upcoming semester.

## EECS IEEE-HKN Awards Ceremonies

As a chapter, we decided that it was important to honor the students and faculty that have gone above and beyond their call throughout the year. Because of this mindset, each semester we host an awards ceremony to recognize academic success across our department. For the fall semester award ceremony, the awards we give out include the James Maxwell Outstanding Undergraduate Senior Award, and the Charles Wheatstone Outstanding Graduate Award. For the spring semester award ceremony, the awards we give out not only include the James Maxwell Outstanding Undergraduate Senior Award, and the Charles Wheatstone Outstanding Graduate Award but also the Michael Faraday Outstanding Graduate Teaching Assistant Award, the Nikola Tesla Award for the student choice of most influential faculty member and numerous appreciation awards to adjunct faculty and HKN members.

The annual Fall Awards Ceremony provides IEEE-HKN the opportunity to honor graduating students who have shown remarkable academic excellence and character growth from the Electrical, Computer Engineering and Computer Science department (EECS). Individual awards are presented to the outstanding undergraduate and graduating students, with speeches from faculty members who have built personal relationships with the recipients. The award recipient for outstanding graduating undergraduate and graduate students were Alex Mages, and Taher Alharbi. Fifteen HKN members, including faculty were in attendance with a multitude of family and friends in attendance to show support.



The spring semester award ceremony was an amazing success. The event was held on the 12<sup>th</sup> of May. It was a well-attended event with the chair of the EECS department, adjunct faculty, student speakers, and friends and families. Appreciation certificates were handed out to adjunct faculty who constantly give their time and effort into ensuring that the EECS department continues to flourish. When it came time to honor our faculty members, we had students who knew the faculty give individual speeches on how this faculty member has impacted their college careers. This turned out to be the pinnacle feature of the night. The faculty in attendance were very appreciative of this unique addition to the award ceremony. The outstanding Graduate Teaching Assistant Award was presented by a faculty member who worked closely with the GTA and he also said very kind and deserving words about why this candidate deserved to be recognized. This award ceremony was a success and we the organizers were very proud of the impact and appreciation we showed to the members of the EECS community.



## Brown Bag Lunch Session on “Machine Learning” with Faculty

Our chapter hosted the Brown Bag Lunch on Machine Learning, for the EECS students and anyone who was interested in this subject. The event was mainly focused on Computer Science students because of its content. However, it was an excellent event for anyone interested in learning more about Machine Learning. Dr. Prakash Ramanan, Dr. Huzefa Kagdi, and Dr. Deb Bhattacharya were invited to attend the event and discuss with the audience about Machine Learning. Four HKN officers were also in attendance along with other students, both with and without HKN membership.



## Workshop with Faculty: Control Systems Workshop

We organized a workshop to the engineering students titled "Control System and their Applications" on April 6<sup>th</sup>. We were pleased to have Dr. Animesh Chakravarthy, a joint professor from both AE and EECS department to speak to us at the workshop. Dr. Chakravarthy obtained his Ph.D. from Massachusetts Institute of Technology (MIT) in the area of Aeronautics and Astronautics. His current research interests include path planning and collision avoidance of autonomous vehicles and dynamics and control of morphing aircraft. This workshop was very helpful to the students who were interested in doing graduate studies and undergraduate research in the field of controls in aviation.



## Student Leadership Conference 2017

The Student Leadership Conference (SLC) of IEEE HKN for the year 2017 was hosted by the Beta Chapter at Purdue University. Three officers from our Epsilon Xi chapter attended the conference that started at 5:00 pm on the 31st March 2017 with opening remarks from the Head Professor of ECE department at Purdue. After the dinner, we had a keynote speech on EPICS in IEEE by Ray Alcantara, Program Manager, EPICS in IEEE. In SLC 2016 he introduced the program to us after which we went on to apply and obtain a \$10,000 grant to build mobile assists to children with disability. During his speech he called upon one of our officers to share about the project and how to apply for the EPICS in IEEE grant.

The second day of conference had twelve brainstorming sessions with three of them taking place simultaneously limiting us to choose four sessions. We attended the sessions on Washington Internships for Students of Engineering (WISE), Intersectionality in Engineering, Entrepreneurship Panel and Direct, Current: Professional Communication with Power. All these sessions were very interesting and provided us with a chance to interact with HKN officers from student chapters from various parts of the world and motivated us with a lot of ideas that we could implement at WSU. The conference ended with a keynote speech on Global Communications by Kirk St. Amant, Professor and Eunice C. Williamson Endowed Chair of Technical Communication, Louisiana Tech University and Madelyn Flammia, Associate Professor of English, University of Central Florida. Finally, we had the Key chapter awards followed by the vote of thanks ending the SLC 2017.



## GoBabyGo Program: IEEE-EPICS “Ride on Cars for Children with Disabilities”

As part of social welfare activities of IEEE HKN Epsilon Xi chapter started helping the GoBabyGo program at WSU to build custom designed ride on cars for children with disabilities. We worked with physiotherapy students, engineering students and therapists in several builds to assist them with the technical part of the modification of cars. With our helps GoBabyGo program, we achieved two complex builds.

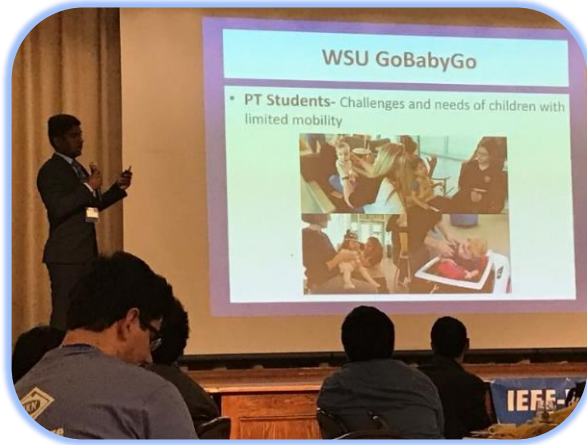
This experience motivated us to move the GoBabyGo program to a new level. We partnered with WSU GoBabyGo, Rainbows United (a NGO) and Trinity Academy (High school partner) to apply for EPICS in IEEE grant in Fall 2016. Our project titled “Ride on Cars for Children with Disability” got approved and we received a grant of \$10,000 from IEEE-EPICS. After we received the fund we had our first kick-off meeting on April 2017.



For this project, we have formed a dedicated working committee with student members of our chapter and an Advisory Committee consisting of our Faculty Advisor and representatives from our partners. We also update all our GoBabyGo project progress in our [website](#).



With the help of IEEE Wichita chapter, we presented our project in HKN leadership conference on May 2017.



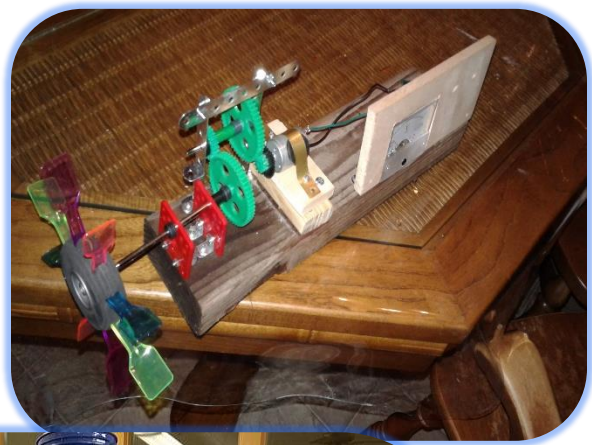
In summer, we started working on an extremely complex build for Aaron. Aaron is two and a half years old boy and has a diagnosis of Spinal Muscular Atrophy (SMA) which is a degenerative condition. He will eventually lose motor function. His legs have already lost motor sense and his hands and fingers motoring function is degenerative. We had our first meeting with Aaron on May 2017.

Therefore, we modified a basic ride on car providing a touch panel that Aaron can use to control the movement of the car. It also includes a remote control for parents and an infant car seat with sliding table set up. The touch panel will be an Android tablet for which the app for control was created by our students. As of now we are designing the collision avoidance mechanism and the car will be delivered before the end of June 2017. We plan to build 10 ride on mobility assists by the end of December 2017. Among those ten builds, four will be complicated build which would require additional features to support children with critical conditions.



## Minneha Elementary School: Hydro-Electric Power Plant Project

5 Members of Epsilon Xi visited the Minneha Core Knowledge Elementary school in East Wichita to present to the students a working model hydroelectric power plant. During this session, the students were introduced to the basic components and operations of real world power plants through a presentation by our faculty advisor, Dr. Visvakumar Aravinthan. Afterwards, the students were given the opportunity to locate these components on the model. The model was then operated and the students were given the opportunity to change some model parameters, such as head height and turbine size, to see how this impacted the power output of the system. We were excited to see how well the students grasped these concepts and at the same time enjoy playing with the model plant.



## Outreach program: Project Lead the Way

We visited Eisenhower High School in Goddard, KS on March 3rd, 2017 to promote Electrical Engineering, Computer Engineering, and Computer Science programs to high school students with the partnership of the program Project Lead the Way. A team of 08 members, 06 HKN members, 01 Faculty and 01 alumina Electrical Engineering student joined this visit. We were allocated a booth and the team interacted with the school students visiting the booth. During the first visit, we got a chance to see the projects built by students. The team observed that the students were having trouble in building the logic and felt our team could give some guidance for the coding. We were invited to visit the school again and help the school students in building the code for their academic project.



A team of 7 members visited Northwest High School in Wichita, KS on April 5<sup>th</sup>, 2017 to bringing the awareness of engineering application to high school students and also to promote Electrical Engineering, Computer Engineering and Computer Science programs to high school students with the help of the program Project Lead the Way.

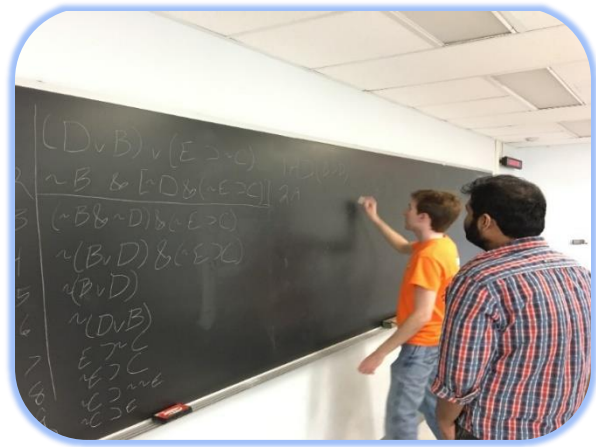


## Tutoring Program

IEEE-HKN tutoring program is one of the most popular programs in the EECS Department. Tutoring sessions are a tradition in our chapter at WSU and this semester we again helped a large number of students with their Electrical and Computer engineering courses. These sessions gave students a chance to get individually focused help.

Moreover, it became a place where the undergrads and graduate students could meet and discuss about their academic and research work. It paved way for some interesting brain storming sessions like the one shown in the picture below.

As of now we have 3 tutoring sessions of 2 hours each on Tuesday, Wednesday and Friday. In future, we would like to make the scheduling even more liberal by allowing the students who are frequent attendees and the corresponding tutors to decide a time that works best for them both.



## Financial Report 2016-2017

### Fall 2016

<u>Category</u>	<u>Date</u>	<u>Vendor</u>	<u>Description</u>	<u>Amount</u>	<u>Account Balance</u>
			Starting Balance		\$ 1,623.47
<b>Information day Fall 2016</b>	9/23/2016	Walmart	Beverages	\$ (5.85)	\$ 1,617.62
<b>Award Ceremony Fall 2016</b>	9/23/2016	Papa Johns	Pizza	\$ (43.35)	\$ 1,574.27
<b>Award Ceremony Fall 2016</b>	12/9/2016	WSU Engraving	Award Plaques	\$ (80.00)	\$ 1,494.27
<b>Member Initiation</b>	11/14/2017		Payment to HQ	\$ (540.00)	\$ 954.27
<b>Member Initiation</b>	10/11/2016	Members	Membership fees	\$ 630.00	\$ 1,584.27
<b>Papa Johns Promotion</b>	1/19/2017		Income from Promo Code	\$ 177.11	\$ 1,761.38
<b>Award Ceremony Fall 2016</b>			Supplies	\$ (299.00)	\$ 1,462.38

### Spring 2017

<u>Category</u>	<u>Date</u>	<u>Vendor</u>	<u>Description</u>	<u>Amount</u>	<u>Account Balance</u>
			Starting Balance		\$ 1,463.00
<b>Papa John's Promotion</b>	1/19/2017		Income from Promo Code	\$ 70.95	\$ 1,533.95
<b>HKN for Founders Day</b>	1/31/2017		Reimbursement from HQ	\$ 100.00	\$ 1,633.95
<b>Social Event</b>	2/12/2017	Shocker Grill	Bowling Event for members	\$ (37.63)	\$ 1,596.32
<b>Award Ceremony Spring 2017</b>	3/10/2017	WSU Engraving	Name Plates for wall display	\$ (36.00)	\$ 1,560.32
<b>Faculty Appreciation Day</b>	3/17/2017	Krispy Kreme	Payment for 2016 F. A Day	\$ (27.00)	\$ 1,533.32
<b>Award Ceremony Spring 2017</b>	3/8/2017	Office Depot	Supplies	\$(182.00)	\$ 1,351.32
<b>Member Initiation</b>	4/4/2017	Members	Membership fees	\$ 630.00	\$ 1,981.32
<b>Member Initiation</b>	4/4/2017		Payment to HQ	\$(540.00)	\$ 1,441.32
<b>Award Ceremony Spring 2017</b>	4/4/2017	Home Depot	Supplies	\$ (9.40)	\$ 1,431.92

<b>Student Leadership Conf.</b>	4/11/2017	WSU Car Rental	Car Rental for SLC	\$(176.00)	\$ 1,255.92
<b>Student Leadership Conf.</b>	4/14/2017	Hampton Inn	Accommodation for SLC	\$ (386.40)	\$ 869.52
<b>Student Leadership Conf.</b>	4/17/2017	IEEE Wichita Chap.	Donation for SLC	\$ 297.14	\$ 1,166.66
<b>Award Ceremony Spring 2017</b>	4/22/2017	Walmart	Supplies	\$ (14.91)	\$ 1,151.75
<b>Award Ceremony Spring 2017</b>	4/28/2017	Dillons	Cookies	\$ (14.48)	\$ 1,137.27
<b>Initiation Day</b>	4/28/2017	Papa Johns	Pizza	\$ (70.95)	\$ 1,066.32
<b>Student Leadership Conf.</b>	4/29/2017	Gas Stations	Gas for SLC	\$ (134.04)	\$ 932.28
<b>Student Leadership Conf.</b>	4/29/2017		SLC Registration	\$ (135.00)	\$ 797.28
<b>Postal</b>		USPS	Mailing Costs	\$ (11.93)	\$ 785.35
<b>Student Leadership Conf.</b>	6/30/2017		Food during SLC	\$ (67.70)	<b>\$ 717.65</b>

## Time Table

Activity	Spring, Fall, Both	Person Hours	Description
<b>Tutoring</b>	Both	1000	Provided tutoring for EECS department undergraduates. 10 tutors, tutoring for 8 courses. As of now we have 3 tutoring sessions of 2 hours on Tuesday, Wednesday and Friday. (10*2*3*#weeks(8)*2semesters)
<b>Information Session</b>	Both	160	Met potential IEEE-HKN members, offered information on IEEE-HKN
<b>Induction Ceremony</b>	Both	200	Inducted new members into IEEE-HKN
<b>Go Baby Go</b>	Both	600	Modified ride on toy cars for limited mobility children.
<b>School Outreach: Elementary</b>	Both	80	Promoting engineering to young kids. Explained basics of electricity to 3rd & 5th graders, built a model hydroelectric power plant
<b>School Outreach: High school</b>	Both	200	Promote Electrical Engineering, Computer Engineering and Computer Science programs to high school students. Helped students with program codes for their academic project.
<b>Award Ceremony</b>	Both	500	Award get together honoring recipients of HKN Epsilon Xi's awards
<b>General Meeting</b>	Both	110	General meetings served as an opportunity to get IEEE-HKN members to discuss about upcoming activities, events and other general information.
<b>Officer Meeting</b>	Both	90	Discussed necessary information to keep Epsilon Xi running successfully
<b>Bowling with HKN</b>	Spring	30	Socializing with HKN members
<b>Brown Bag Lunch</b>	Spring	60	Brown Bag lunches serves as an opportunity for EECS faculty and WSU students to interact in a non-academic setting
<b>Workshops</b>	Spring	40	Workshops that promoted professionals from the EECS field to discuss topics of interest with WSU Student Body
<b>Founders Day</b>	Fall	75	Booth in Rhatigan Student Center honoring the HKN founding members and promoting HKN to WSU student body.
<b>Total</b>	Both	<b>3145</b>	Total amount of HKN Epsilon Xi chapter hours



## Closing Remarks

The 2016-2017 year has been a large success. As the society continues to grow and thrive, we begin to create a noticeable footprint on our campus and community. HKN Epsilon Xi has been recognized by the College of Engineering as the most active engineering society at Wichita State University. As we reflect over our accomplishments over the past year, it is also worth mentioning our plans for the future. As we continue our mission to make a difference in our local community by increasing outreach, we intend to increase our campus presence to boost recruitment as well as stimulate Epsilon Xi through efforts to increase revenue. Needless to say that we increased our community service hours from 1894 to whopping 3145. This is mainly due to the increase in the number of officers as well as the number of activities we conducted up until now.

- IEEE-HKN Epsilon Xi Chapter

For more of our activities, visit:  
[www.facebook.com/HKN.EpsilonXi](http://www.facebook.com/HKN.EpsilonXi)